ANNUAL REPORT 2002

changing landscape

Cover Photos

Front Top Pair: Building 333, before and after

Front Lower Pair: Building 452, before and after

Back Top Pair: Building 442, before and after

Back Lower Pair: Building 850, before and after

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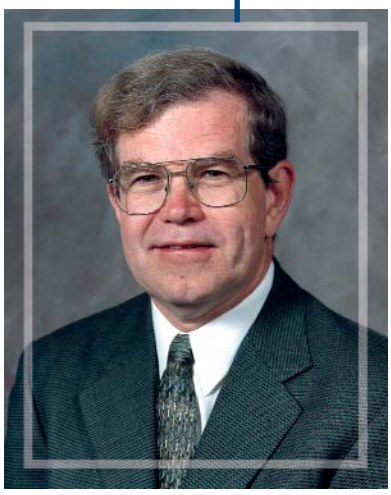
MESSAGE FROM THE MANAGER



Eugene C. Schmitt

The Rocky Flats landscape underwent more dramatic changes in 2002 than in any year since it was constructed. More buildings were demolished than in any other year. More waste was shipped off-site, more square feet were decontaminated, and more project acceleration was achieved than in any previous year. During 2002 we made solid progress toward our goal of cleaning up and closing down Rocky Flats, moving ever closer to the realization of the Rocky Flats National Wildlife Refuge.

At the beginning of the project, in 1995, the Site had tons of stored plutonium and depleted uranium, tons of plutonium residues that needed processing, and tens of thousands of liters of plutonium liquid that had to be drained. Today all of the uranium is gone, all residues are stabilized and will be gone by the end of 2003, and all of the plutonium liquids have been drained and stabilized to be shipped off-site by the end of 2003.

At the beginning of the project Rocky Flats was the site of five of the ten "most dangerous buildings in America," and none of the highest priority soil and water cleanups had begun. Today, cleanup is under way in all of the buildings with the urgent risks already eliminated and eight of the ten priority environmental cleanups completed.

As of the end of 2002, 47 percent of the 2000 closure contract scope has been completed while only 41 percent of the contract period has elapsed. Additionally, the contractor accomplished $724 million worth of work during 2002 at a cost of $612 million. That is $100 million more work completed than was planned for the year at a cost of approximately $120 million less than was estimated. This outstanding progress toward Site closure is reflected in this report and in the project metrics being monitored and reviewed by the Department, the regulatory agencies, and the public.

I want to thank all Rocky Flats workers who have gone above and beyond to achieve this level of project success. Knowing that they are working themselves out of a job, Site workers continue to display the high levels of professionalism and dedication required to achieve the safe closure of Rocky Flats. Without the continued support of our highly trained and experienced workers, the project would not have achieved the significant cost savings and schedule acceleration that brought us to this point.

Even though Site closure is ahead of schedule and below cost, we must remain vigilant and determined to achieve a safe, on-time transition of the Site to the Rocky Flats National Wildlife Refuge. During the next few years we must maintain worker safety to achieve the schedule, complete the plutonium stabilization and packaging system production, demolish the major plutonium buildings, ensure existing transuranic waste meets the Waste Isolation Pilot Project Waste Acceptance Criteria, find receiver sites for "orphan" waste, and obtain regulatory agency acceptance of proposed environmental remedies.

I am confident that by actively managing these challenges and working closely with the community and the regulatory agencies, we will safely close Rocky Flats on time and within budget.

Eugene C Schmitt

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SIGNIFICANT EVENTS 2002

- Accomplished $724 million worth of work at a cost of $612 million. That is $100 million more work completed than was planned for the year at a cost of approximately $120 million less than was estimated.
- Completed stabilization and repackaging of all plutonium residues about one month ahead of schedule and more than $11 million under budget.
- Entered and decontaminated the Infinity Room in Building 771. The Infinity Room once had contamination levels so high that hand-held instrumentation could not measure them. These high contamination levels were among the reasons Building 771 was once labeled the "most dangerous building in America."
- Removed and size reduced all 240 gloveboxes and 368 of 397 tanks in Building 771.
- Removed 240 pendants (portable containers for Special Nuclear Materials) that stored plutonium metals and oxide in Building 707.

Glovebox decontamination in Building 371

903 Pad Tents under construction

Solar Evaporation Ponds remediation project

- Decontaminated Glovebox 36 in Building 371/374. Although this is only one glovebox of 428, it contained 6 kilograms (13 pounds) of plutonium holdup, the highest concentration of holdup in the building. Workers also removed and size-reduced one ton of equipment from Glovebox 36.
- Removed several extremely large and difficult pieces of equipment from Building 776 including the Supercompactor and the Pilot and Production Fluidized Bed Incinerators.
- Demolished 104 of the 240 facilities in the Southside Industrial Area including Building 886, the first of five uranium-contaminated buildings; Building 850, a large administration facility; Building 111, a large office facility; and Building 125, the calibration laboratory.
- Initiated environmental remediation of the 903 Pad.
- Conducted negotiations with the U.S. Fish and Wildlife Service on the Memorandum of Understanding between the Department of Energy and the Department of Interior to address the process for transition of administrative jurisdiction of the Site after the Closure Project is complete.

Building 771 glovebox decontamination

- **Completed the first** Comprehensive Environmental Response, Compensation, and Liability Act **Five-Year Review, demonstrating that the remedies for Operable Units 1 and 3 continue to be protective of human health and the environment.**

- Completed characterization and remediation of Under Building Contamination for Buildings 886 and 889.
- Initiated shipments of Special Nuclear Materials to the Savannah River Site.
- Conducted a public process for determination of new, more restrictive Radionuclide Soil Action Levels and began public review of the proposed modifications to the Rocky Flats Cleanup Agreement Attachments.
- Deployed numerous innovative technologies resulting in cost savings, schedule acceleration, and reduced risk to workers.
- The Rocky Flats Fire Department actively participated in fighting numerous wildfires in Colorado during the state's second season of severe drought.
- Shipped more than 2,700 cubic meters (m^3) of low-level-mixed waste, formerly "orphan waste" to facilities throughout the country.
- Completed a total of 497 shipments, consisting of 11,180 drums and 576 standard waste boxes, containing 3,446 m^3 of transuranic waste to the Waste Isolation Pilot Plant, making Rocky Flats the top shipper of transuranic waste.
- Shipped a record amount of low-level waste, 26,109 m^3, to the Nevada Test Site, the most low-level waste ever shipped off-site in one year since the Closure Project began.
- Produced almost 1,200 cans (out of approximately 1,950 cans total) of plutonium metals and oxides in the Plutonium Stabilization and Packaging System, for long-term (50+ year) storage.
- Currently shipping 60 trucks of radioactive waste (low-level and transuranic) for permanent disposal each week.
- Completed environmental remediation of the Solar Evaporation Ponds.

Building 776 Cooling Tower before and after

SIGNIFICANT EVENTS 2003 AND BEYOND

2003

- Complete Plutonium Stabilization and Packaging System operations.
- Complete removal and shipment of all Category I and II Special Nuclear Material.
- Complete the Mobile TRUPACT II loading station to support the transuranic waste program.
- Complete remediation of the 903 Pad.
- Demolish Buildings 865, 881, 441, 112, 334 (Maintenance Shop), 551 (Warehouse), and 443 (Steam Plant).
- Complete design and install evapotranspiration cover for the Present Landfill.
- Close last remaining Material Access Area in Building 371.
- Eliminate the reconfigured Protected Area.

2004

- Demolish 55 facilities including Building 771.
- Complete under-building contamination remediation for Buildings 881, 883, and 887.
- Complete deactivation of Building 371.
- Clean eight environmental release sites.
- Dispose of 49,000 cubic meters of low-level waste, 4,700 m^3 of low-level-mixed waste, and 3,600 m^3 of transuranic waste.
- Complete Comprehensive Conservation Plan for Rocky Flats National Wildlife Refuge (U.S. Fish and Wildlife Service).

2005

- Complete demolition of Buildings 559 and 460.
- Complete groundwater remediation projects.
- Complete demolition of Building 707.

2006

- Complete Building 776/777 demolition.
- Complete demolition of Industrial Area.
- Complete demolition of Buildings 371/374.
- Complete Industrial Area regrade and revegetation.

FACILITY DISPOSITION

Workers decontaminate Building 771 Glovebox

Closing Rocky Flats involves the elimination of hundreds of facilities and structures totaling approximately 3.5 million square feet of floor space. Current plans are to decommission and demolish all of the buildings. This includes cleaning out and decontaminating the buildings and disposing of waste and recyclable materials. Facilities are categorized into three types in the Rocky Flats Cleanup Agreement. Type 1 facilities are buildings free of contamination; Type 2 are buildings without significant contamination or hazards, but in need of decontamination; and Type 3 buildings have significant contamination and/or hazards (major plutonium facilities).

The Facility Disposition program continued to focus on improving safety and efficiency in 2002 to reduce worker risk and decrease costs. New technologies and methods are regularly assessed to determine if they can be adopted for use. In 2002 new technologies included using harmonic delamination for demolition of structural concrete, improving the effectiveness of chemical decontamination, and disposing of gloveboxes without having to remove lead shielding. (See Technology Deployment section, page 11.)

To achieve improved efficiency, three Rocky Flats Cleanup Agreement standard operating protocols were implemented. These protocols cover facility disposition (demolition or removal); component and equipment removal and decontamination; and concrete rubble recycling for backfill.

The following major facility disposition accomplishments in 2002 are summarized by project:

Building 771/774 Project

Significant project accomplishments included entering and decontaminating the infinity room. The infinity room once had contamination levels so high that hand-held instrumentation could not measure them. These high contamination levels were among the reasons Building 771 was labeled the "most dangerous building in America." Also during 2002, the Building 771/774 project crew successfully decontaminated and disposed of one of the largest and most contaminated gloveboxes in the building. This glovebox, called SR12, contained tools and equipment used during production which required the removal of more than 600 separate bags of contaminated equipment. By the end of 2002, all 240 gloveboxes and 368 of 397 tanks had been safely removed and size reduced. By early 2003, all tanks will be removed, and by late 2003 all remaining equipment will be removed. The project deployed an innovative water jet technology to cut up several large tanks.

Preparing Building 771 glovebox for disposal

Building 707 Project

A total of 36 decommissioning work-sets were completed against a baseline plan of 32 decommissioning work-sets for 2002. Thus far, about 60 percent of all gloveboxes have been removed, and removal of all gloveboxes is anticipated to be complete before the end of 2003. One particularly significant accomplishment was the removal of 240 pendants (portable containers for Special Nuclear Materials) that stored plutonium metals and oxide. The Building 707 project is expected to be complete by fall 2005.

Building 707 glovebox decontamination

Building 371/374 Closure Project

Workers continued removing special nuclear material from gloveboxes; moved ahead with SNM deactivation activities and decommissioning; conducted in-process characterization; continued draining non-actinide solutions from tank systems; and continued tank decontamination. Work on the gloveboxes included removing all internal components and decontaminating Glovebox 36. Although this is only one of 428 gloveboxes in Building 371/374, it contained 6 kilograms (13 pounds) of plutonium holdup, the highest concentration of holdup in the building. Workers also removed and size reduced one ton of equipment from Glovebox 36.

Building 371 Glovebox 36 packaged for disposal

Chemical processes were initiated to decontaminate gloveboxes, allowing them to be shipped for disposal without removing the leaded glass windows and leaded gloves, thus reducing the risk to workers who previously had to physically remove all lead components. Sludge was removed from a 950,000-gallon tank using a custom-designed, remote-control-tracked vehicle connected to a vacuum hose, reducing worker radiation exposure while meeting a Site Treatment Plan milestone. The project continued developing and using another vacuum system to remove Raschig Rings from contaminated tanks. Raschig Rings contain boron and were used to prevent radioactive liquids from reaching criticality in large tanks. Using a vacuum to remove the rings significantly reduces worker exposure in the tank decommissioning process.

Building 371 SNM Bagout

Building 776/777 Project

The project continued decontamination work including equipment removal and disposal. To date, 273 of the total 279 gloveboxes have been removed for disposal. The project has completed 73 of the total 84 decommissioning work-sets, including the removal of several extremely large and difficult pieces of equipment, such as the Supercompactor and the Pilot and Production Fluidized Bed Incinerators.

Building 776 Supercompactor

Suspected buried equipment locations were characterized and are no longer an unknown aspect of the project. After excavating the fill from 10 of the 13 locations and core boring the remaining three solid concrete-filled locations, the project determined that contamination levels were significantly lower than anticipated and only one large item, a structural component of a hydraulic press, was entombed in the building. Removal of that item is being deferred to the building demolition phase of the project.

A new technology for generating aerosols in large areas was successfully deployed to reduce airborne contamination and improve worker safety while cleaning out the contaminated Size-Reduction Vault.

Southside Industrial Area Project

Exceptional progress toward completion of the Southside Industrial Area decommissioning effort was made during 2002. A total of 104 of the 240 facilities in the area were demolished including 12 permanent buildings, 26 trailers, and Building 886, the first of five uranium-contaminated buildings. Innovation and acceleration of the closure project marked the year's progress.

Building 850 demolition

Use of innovation included the first use of explosives to bring down three guard towers and the first use of harmonic delamination to bring down 5-foot-thick concrete walls in the criticality laboratory containment structure. Delamination was accomplished by setting high explosive charges deep within the thick walls and setting the charges off in a rapid sequence that shook the walls to the extent that the concrete bond with the rebar (reinforcing steel bars within the concrete) was broken, weakening the still-standing walls so they could be easily removed by an excavator. Other buildings of note that came down in 2002

Building 776 machine lathe before and after

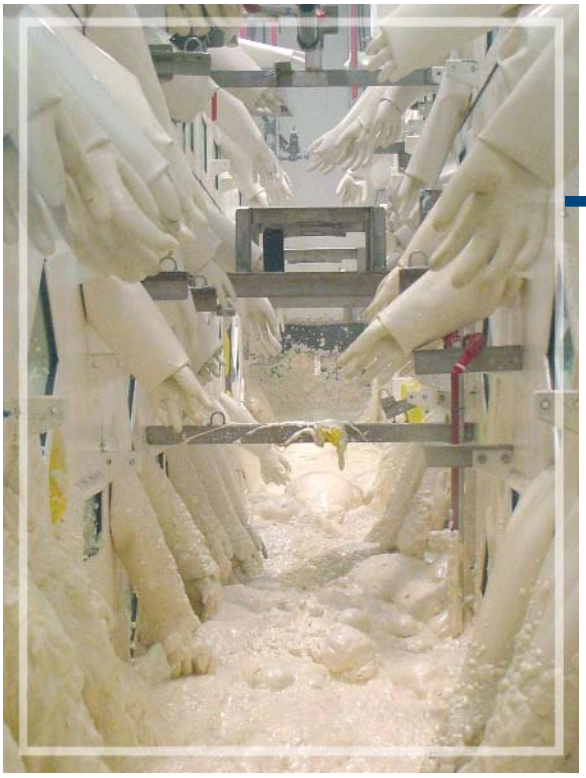
include Building 850, a large administration facility; Building 111, a large office facility; and Building 125, the calibration laboratory.

Substantial decommissioning work has been completed in the remaining large uranium buildings. The removal of all equipment was completed in Building 881 and the decommissioning contract to take the building down (possibly in fiscal year 2003) is under way. The Building 883 project continued to remove equipment and the decommissioning contract for it is under way with probable completion in early 2004. Nearly all equipment has been removed from Building 444. The decommissioning subcontract task for this building is under negotiation, with completion expected late in 2004.

In Building 865, decommissioning, performed under a commercial demonstration contract, was not as great a success as originally anticipated. While work in the building has progressed, it has

Building 776 - last core sample being pulled

been slower than expected and the subcontractor had difficulty completing work to Site safety expectations. As a result, Kaiser-Hill Construction has taken over direct management of the decommissioning subcontractor workforce, and is making changes for improved safety performance. A similar approach is being employed in the Building 881 decommissioning contract.



Foaming Building 371 glovebox 38 to stabilize contamination

Building 442 slab removal

Building 111 site regraded

Worker checking for material holdup.

TECHNOLOGY DEPLOYMENT

Coated Tarp Package

Cargo containers are the packaging containers of choice for low-level radioactive waste because they allow larger items of waste to be disposed of without size reduction. The Rocky Flats inventory of cargo containers includes more than 900 that do not meet Department of Transportation requirements for Strong, Tight Packaging. A method was sought that would provide an overpack system by which the older cargo containers might be effectively packaged, filled with low-level waste from decommissioning operations, and shipped to the Nevada Test Site.

Using a single-ply, 19-mil coated tarp material as a "soft side" overpack called the D Unit, the Building 883 project staff demonstrated strong, tight package equivalency, allowing the previously non-compliant containers to be shipped as waste packages. In addition to disposing of the cargo containers, each container can be loaded with low-level radioactive waste.

The system consists of two dish-style pieces, a 1-foot-deep bottom section and an 8-foot-deep upper section connected using industrial strength Velcro strips. The package is then secured to a structural platform base that allows Rocky Flats and Nevada Test Site operators to handle the unit.

Rocky Flats received approval from the Nevada Test Site to use this overpack system on Low-Specific-Activity waste and surface-contaminated objects containing uranium, depleted uranium or plutonium. Documented savings for the original 16 cargo containers, from avoiding size reduction or other forms of more costly disposal alternatives, were in excess of $300,000.

Glovebox Decontamination Technology

Gloveboxes were used as the primary protective barrier for plutonium workers in production facilities at the Site for the last 40 years. From the inception of decommissioning these facilities, gloveboxes have been removed by means of hazardous size-reduction operations. Using shared funding from the Office of Science and Technology and the Site, workers initiated a new technology for decontaminating gloveboxes.

Using a new chemical decontamination process, workers spray a solution inside of the glovebox, dissolving "caked-on" contamination. The process has been so successful that it has almost eliminated the need for size reduction, thereby retaining the protective barrier of the glovebox itself. After completion of the process, virtually all interior transuranic waste contamination has been removed, and the gloveboxes can be packaged and shipped out in one piece. This new process enhances worker safety by greatly reducing worker exposure levels, and also reduces waste packaging and shipping costs.

The new method has been adopted throughout Rocky Flats. Building 771 Closure Project alone saved between $22 and $23 million through avoided transuranic and low-level-waste waste management, reduced waste disposal costs, and reduced worker hours.

Hydrolasing Surface Decontamination Technology

Conventional methods used to remove paint and decontaminate surfaces usually involved scabbling (chipping away the first layer of the surface with a pneumatic hammer) or some form of sandblasting. Both methods create a great amount of dust and generate large quantities of waste. To enhance worker safety and reduce waste volumes, an improved technology was sought to strip floors and walls of paint and any underlying radioactive contamination.

The hydrolase system, proposed by TMR Associates, significantly reduces the potential for airborne contamination, minimizes waste, and contains any contamination from the floor and wall surfaces as it is removed. The system blasts away paint and the initial layer of the surface material, captures the resulting water and debris, and filters this mixture to separate the water from leftover sludge for analysis and treatment or disposal.

Workers apply polyurea coating to equipment from Building 883

The hydrolaser itself is a compact, track-driven sled resembling a lawn mower base without wheels. Underneath the base is a round, rotating head with six high-pressure jets capable of spray pressures up to 36,000 pounds per square inch. Offset to one side of the spray head is a port that connects to a vacuum line to remove the water and debris and pump it back to the filtering unit. The hydrolasing unit is capable of operating on floor surfaces or suspended from a boom for walls.

Supercompactor in Instacote™ ready to ship

Polyurea Coating Used as Shipping Container

One of the major challenges involved in closing Rocky Flats is the disposal of extremely large pieces of production equipment contaminated with radioactive or hazardous materials. Past practice has been to size-reduce the equipment into pieces that fit in approved, standard waste containers. Size-reducing this large equipment is extremely time- and labor-intensive, exposing workers to significant industrial, chemical and radiological hazards.

A proposal to coat equipment with a polyurea spray proved to be effective in meeting the definition of a strong, tight, industrial package. This allowed the equipment to be transported to a waste receiver site intact on a flatbed trailer. Some extremely large pieces of equipment at Rocky Flats will still require size reduction to meet road size limitations. The use of polyurea spray coating, Instacote™, to provide the packaging of a majority of the large pieces of equipment at Rocky Flats is expected to significantly reduce worker exposure to hazards and pare down project cost and schedule.

The InstaCote™ process was first used on furnaces from Building 865 in a demonstration project. Aggressive size-reduction efforts were eliminated for both furnaces. Nearly all safety and health hazards associated with size-reducing and packaging were also eliminated. Cost savings for two furnaces exceeded $30,000. The process is expected to save millions of dollars in the closure of Rocky Flats. The Department of Transportation and the Nevada Test Site have both approved this use of polyurea plastic for packaging low-level waste for shipment to the Nevada Test Site.

Improved Alpha Detection Instrumentation

The Ludlum High-Range Alpha Ion Chamber was developed and refined by the Ludlum Company working with the Alpha Group, Rocky Flats' radiological instrumentation contractor, to measure high levels of surface contamination. The instrument was necessary for Rocky Flats to capitalize on the Department of Transportation's shipping classification, surface-contaminated object, for transporting low-level radioactive waste. A surface-contaminated object is a solid object which is itself not radioactive, but which has fixed and/or removable radioactive contamination distributed on any of its surfaces. The ability to characterize, package and ship waste as surface-contaminated objects has had positive cost, schedule and safety impacts on the cleanup and closure of Rocky Flats.

The upper detection limit for standard alpha detection instruments is 2 million disintegrations per minute (dpm) per 100 square centimeters. Surface-contaminated object characterization requires upper detection limits of 500 million dpm per 100 square centimeters. The Ludlum instrument was tested for expected conditions, and results demonstrated that the instrument could measure alpha contamination levels from 10,000 to 1 billion dpm per 100 square centimeters, exceeding instrument requirements.

Building 774, Tank 40 after Jet Edge water jet technology

Other important characteristics such as linearity, temperature response, response to radio frequency interference, ability to calibrate, field maintenance, price, availability and human interface equaled or exceeded characteristics of normal survey instruments. The Ludlum instrument, a newly developed instrument designed for conditions that exist at Rocky Flats, consists of an Ion Chamber Probe and a Readout Unit.

Water Jet Cutting Technology

Process equipment that is too large to be moved and will not meet free-release criteria for disposal must be size-reduced in place. A typical in-situ size reduction requires workers to use heavy equipment and dangerous tools in very close contact with contaminated equipment, exposing workers to multiple industrial and radiological hazards. The Site sought alternative cutting methods that would reduce workers' exposure to cutting hazards, alleviate ergonomic challenges, and minimize the potential for airborne radioactivity and beryllium contamination that result from thermal and mechanical size-reduction methods.

Water jet cutting systems have been used for several years in the automotive, aerospace and other industries. The Site chose to adapt this technology to size-reduce new Tank 40 in Building 774. Workers traditionally would have used nibblers to complete three cuts around the tank's 20-foot circumference. The ultra-high pressure water jet, manufactured by Jet Edge, instead made cuts much more quickly and with very smooth, safe surfaces, while workers were safely staged at a distance.

The use of the water jet keeps contaminants suppressed. Water acts as a fixative during cutting and effectively contains contamination that mechanical and thermal means would send airborne. Safely staged at a distance, workers endure no ergonomic or physical strain and are not exposed to potential falls, confined spaces, or cutting and breaching hazards.

Project managers are planning to use Jet Edge technology to size-reduce filter plenum walls in Building 771. Other Rocky Flats projects are considering its use to size-reduce numerous large, contaminated tanks located throughout the Site.

Harmonic Delamination Technology

The former criticality experiment laboratory in Building 886 had 4- and 5-foot-thick walls that would be extremely time consuming and costly to tear down using traditional mechanical demolition methods. The Site decided to hire a demolition expert, Controlled Demolitions Incorporated, to utilize explosives in a proprietary method they term "explosive harmonic delamination."

The delamination process involves drilling holes in the concrete, placing relatively small amounts of explosive materials in the holes, and setting off the explosives in a timed pattern to shake the concrete structure. The sequence of explosions causes intense vibrations that separate the cement matrix in the concrete from the gravel aggregate and rebar (reinforced steel bars within the cement walls). The structure remains standing, but will be substantially weakened, allowing efficient removal by mechanical (excavator) means.

The process caused the cement to come away from the metal rebar more completely than anticipated, minimizing the time and effort required to bring down the building while supporting an accelerated schedule and reduced cost for the project.

SPECIAL NUCLEAR MATERIALS MANAGEMENT

Shipping Program

Plutonium oxide repackaging

Removal of the Site's Special Nuclear Materials (SNM) inventory, which includes plutonium and highly enriched uranium, is essential to achieving Site closure. SNM removal plans for 2002 included shipment of plutonium composite items (plutonium bonded to other materials, such as beryllium and tantalum) to Lawrence Livermore National Laboratory and startup of shipments of highly-enriched uranium items and plutonium metal and oxide to the Savannah River Site. The recently revised disposition path for the plutonium composite items is to size-reduce and ship them to Savannah River. Certification of the container for shipment of plutonium composite materials is expected during the first few months of 2003. Shipments of plutonium metal and oxide to the Savannah River Site commenced during the summer and are continuing. Future plans call for all SNM shipping to be complete by the end of December 2003.

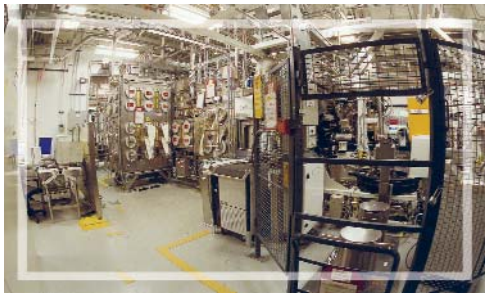
Residue Elimination Project

Residue stabilization and repackaging was completed on May 2, about one month ahead of schedule and more than $11 million under budget. The project was also able to reduce the volume of waste being shipped to the Waste Isolation Pilot Plant. A total of 106,000 kg of residues have been repackaged since the project started in January 1998. Completion of residue repackaging is a major accomplishment that reduces Site risks and supports closure.

Workers repackaging residues

Plutonium Stabilization and Packaging System

The Plutonium Stabilization and Packaging System continues to stabilize and package plutonium metal and oxide materials in the DOE-STD-3013, 50-year storage container. Startup of the system occurred in June 2001 and consistent production rates were achieved by January 2002. While equipment failures and container weld failures are occurring at higher than anticipated rates, the project is progressing with approximately 60 percent of the packaging campaign completed at the end of 2002. Stabilization and packaging of all plutonium metal and oxide is expected to be completed in the second half of 2003.



Plutonium Stabilization and Packaging System

Plutonium Stabilization and Packaging System pretreatment operation

WASTE MANAGEMENT

Low-Level and Low-Level-Mixed Waste

A record amount of low-level waste, 26,109 cubic meters, was shipped to the Nevada Test Site in 2002. This is the most low-level waste ever shipped off-site in one year since the Closure Project began. The Site anticipates shipping 38,000 m^3 of low-level waste in 2003, consisting primarily of surface-contaminated objects from decommissioning buildings.

Waste drums in Tent 9 awaiting shipment off-site in 2002

New technology utilized in the 2002 shipping campaign has significantly impacted cost and schedule savings. In the past, size reduction of extremely large pieces of equipment has been necessary to ensure that the pieces fit into approved, standard waste containers. In addition, the size reduction exposed workers to industrial, chemical and radiological hazards. A new process was initiated in early 2002 to coat equipment with a polyurea spray that meets the Department of Transportation definition of a strong, tight package. This allows equipment to be transported to a waste disposal site, intact on a flat bed trailer. This Instacote™ technology has significantly reduced worker exposure to hazards and reduced project cost and schedule.

Other low-level and low-level-mixed waste management accomplishments in 2002 include:

- **2,557 m^3 of low-level-mixed waste were shipped off-site;**
- **26 m^3 of waste chemicals regulated under the Waste Chemical Compliance Advisory were shipped off-site;**
- **109 m3 of deactivation and decommissioning debris were shipped to Allied Technology Group, Inc. for treatment; and**
- **1021 m3 of Solar Pond Sludge were removed from tanks on the 750 Pad, processed by Duratek Los Alamos Technical Associates to meet off-site disposal requirements, and shipped to Envirocare for disposal.**

All 2002 Site Treatment Plan milestones were achieved by shipping the following low-level-mixed wastes:

- **45 m^3 of granular activated carbon were shipped to the Toxic Substances Control Act Incinerator in Oak Ridge, TN, for treatment and subsequent disposal at Envirocare;**
- **30 m^3 of depleted uranium chips were shipped for off-site disposal.**

'Orphan' Waste

Significant success has been achieved in the last few years to find ways to move "orphan" low-level-mixed waste off-site for treatment and disposal. "Orphan waste" comprises those waste streams for which disposal pathways have not been identified. The Site found treatment and disposal pathways for more than 2,700 m^3 of this waste which was shipped to facilities throughout the country during 2002. The "orphan" waste program also continues to address treatment and disposition issues unique to Rocky Flats that present complex and challenging hurdles that need to be overcome to successfully achieve future Site Treatment Plan milestones. The Site is working with potential treatment and disposal facilities to ensure the timely disposition of the remaining "orphan" wastes to support accelerated closure.

Significant accomplishments in 2002 include:

- **Completed processing more than 300,000 gallons of Building 374 nitrate brine, producing 601 m^3 of spray-dried salt. All salt product was shipped to Envirocare of Utah for treatment and disposal. The milestone for this waste stream was met more than one year ahead of the September 2003 commitment date.**
- **Completed pumping, packaging, and shipping 863 drums of Tank 231B sludge to Waste Control Specialists in Andrews, Texas, for treatment, packaging, and eventual transport to Envirocare for disposal, meeting the September 30 commitment date.**
- **Shipped one drum containing approximately three gallons of elemental mercury to Material and Energy Corporation in Oak Ridge, Tennessee, for amalgamation, meeting the September 30 milestone commitment date. Mercury was consolidated from Site Treatment Plan-regulated waste streams included in the 2001 waste inventory.**
- **Sampled, bulk packaged, and shipped 97 drums of polychlorinated biphenyls and organic liquids to the Toxic Substances Control Act Incinerator for destruction, meeting the September 30 commitment date for shipment of** polychlorinated biphenyls (PCB) **liquids and organic liquids, non-PCB.**
- **Continued to identify and implement treatment and disposal options, accelerating disposition of several Site Treatment Plan-regulated waste streams including incinerator ash and legacy debris with a transuranic activity greater than 10 nanocuries per gram.**
- **Coordinated problematic "orphan" waste issues with DOE Headquarters. Initial efforts focused on solidified bypass sludge and Trench T1 depleted uranium chips. Additionally, the Site sponsored a vendor forum to discuss Rocky Flats orphan wastes with potential treatment vendors in October.**

Workers assembling waste drums

Issues Affecting Waste Disposition:

An overriding issue that affects Rocky Flats waste disposition is the disposal of Site Treatment Plan-regulated waste with a transuranic activity greater than 10 nanocuries per gram. The only hazardous-mixed waste disposal facility that can currently accept low-level-mixed waste with a transuranic activity greater than 10 nanocuries per gram is the Hanford Site. Hanford is not expected to accept off-site-generated low-level-mixed waste for at least eight months, and possibly substantially longer. This could have a major impact on 2003 Site Treatment Plan waste treatment decisions.

Without a disposal outlet, commercial treatment vendors including Allied Technology Group, Incorporated, Waste Control Specialists, LLC, and PermaFix Environmental Services must either provide interim storage, or return the treated waste to the Site. Each of these treatment facilities are governed by license and permit conditions that limit their ability to store significant volumes of plutonium-bearing waste indefinitely, thus limiting the practicality of off-site interim storage. The Site is evaluating options to treat this waste to meet RCRA Land Disposal Restriction requirements and working to identify potential storage and disposal options that do not rely on near-term Hanford disposal.

Transuranic waste bound for the Waste Isolation Pilot Plant

Transuranic Waste

For the third year in a row, Rocky Flats was the top shipper of transuranic waste to the Waste Isolation Pilot Plant. Rocky Flats completed 497 shipments to the Waste Isolation Pilot Plant during 2002, consisting of 11,180 drums and 576 standard waste boxes containing 3,446 cubic meters of transuranic waste. Rocky Flats has contributed more than half of the total volume shipped to the Waste Isolation Pilot Plant from all DOE sites since the Waste Isolation Pilot Plant began to accept transuranic waste in June 1999.

Rocky Flats received approval to ship transuranic waste in standard waste boxes in May 2002. This improved efficiency in volume shipment by approximately 33 percent compared to shipment of 55-gallon drums containing pipe overpack components. The Rocky Flats Transuranic Waste Program has been working closely with the Carlsbad Field Office on several regulatory requirements and permit modifications to improve characterization and transportation efficiency. Throughout 2001 and 2002, Rocky Flats established an unprecedented transuranic waste shipping capacity with the ability to ship up to 21 truckloads of transuranic waste per week.

PROPERTY DISPOSITION

The Rocky Flats property disposition program involves the transfer and disposal of more than 600,000 items of personal property during the life of the closure project. For each item, this effort involves an extensive evaluation for high-risk property concerns and a thorough economic analysis to determine the most cost-effective disposal path. Potential disposal paths for Rocky Flats property include low-level waste, sanitary waste, reutilization, transfer, property sales, and recycle programs.

Revenue from property sales in 2002 was approximately $825,000, which was used to accelerate and/or fund additional deactivation and decommissioning activities. This was made possible by the Asset Management Pilot Program, an innovative program that allows the Site to retain funds from the sale of surplus property. Property sales figures include revenue from public auctions, sealed and spot bid sales, retail sales, term sales, negotiated fixed-price sales and one "asset sale" of approximately 4,000 pounds of tantalum.

Several "sale-in-place" activities were conducted in which the successful bidders were required to remove property at their own expense. This technique was used for mobile office trailers, modular furniture, and large equipment items. In total, 17 individual sales were conducted during 2002.

Innovative recycling programs diverted tons of material from potential waste streams. More than 1,000,000 pounds of used metal was recycled as well as various quantities of compressed gas cylinders, Halon, printed circuit boards and wooden pallets.

The Site's property disposal activity was privatized (the first such privatization in the complex) and moved to an off-site location, vacating warehouse space that allows for the relocation of other activities that will ultimately result in the early decommissioning of several Site facilities. The Site's costly Property Management Data System was replaced with a simplified system designed to operate through the life of the closure project at a substantially reduced cost.

Approximately $6.5 million dollars in assets were transferred or donated to various recipients during the year. Eleven transfers were made to federal agencies and 16 donations were made to state agencies and locally eligible recipients. Rocky Flats continues to support Colorado's Sharing Electronic Equipment District and Statewide (SEEDS) Program with donations of 2,412 sanitized personal computers and a range of peripheral items for refurbishment and distribution throughout the State's school system.

ENVIRONMENTAL RESTORATION

903 Pad Remediation Project

The 903 Pad was originally used from 1958 to 1967 as a drum storage area for approximately 5,000 55-gallon drums of plutonium- and uranium-contaminated cutting oils. During the mid-1960s, it was discovered that some of the drums had corroded and leaked, spilling the oils into the ground. The drums were removed in the late 1960s and some of the soil was removed. In 1969, an asphalt pad was constructed to cover and contain the contamination. Before the pad was installed, high winds had spread the contaminated soil east and southeast of the pad area, creating the 903 Lip Area contamination zone.

The 903 Pad environmental cleanup excavation began November 14, and will take approximately six months to a year to complete. The Environmental Restoration Rocky Flats Cleanup Agreement Standard Operating Protocol Notification for surface and near surface soil with radionuclide contamination at the 903 Pad was approved October 9 by the lead regulatory agency, the Environmental Protection Agency, Region VIII. Two large tents were erected on the Pad to enclose the soil excavation areas and protect the workers and the excavation from adverse weather conditions. Each weather tent will be moved approximately 12 times as excavation and backfill activities continue.

903 Pad Cell A3 excavation

The 903 Pad accelerated action remediation goals include removing and disposing of the asphalt cover as low-level waste; removing and disposing of the artificial fill below the asphalt as low-level waste; removing and disposing of 1 foot of native soil below the artificial fill; and removing and appropriately disposing of additional soil, as necessary, to reduce contamination to below the RFCA Tier I action levels. The extent of the soil removal will take into account the application of as-low-as-reasonably-achievable principles and stewardship evaluations. Remaining soil will be evaluated for additional removal, the site backfilled with clean soil, regraded, and re-vegetated. The volatile organic compounds present in the subsurface soil in the 903 Pad will be addressed through the 903 Lip Area Interim Measure/Interim Remedial Action, a decision document expected in 2003.

Soil Vacuum Technology Demonstration

Soil Vacuum Technology

Wind-borne contaminants from the 903 Pad Drum Storage Area were dispersed over soils to the east and south-east prior to 1969, creating the 903 Lip Area. The Environmental Restoration Program is planning an environmental remediation of the 903 Lip Area individual hazardous substance site in 2004. A Soil Vacuum technology demonstration is being conducted to potentially address these undisturbed surface soils.

Remediation of the lip area by conventional excavation techniques would involve removal of about 6 inches of the top material. Use of this technology could substantially reduce the amount of soil removed and the disturbance to the ecology of the 903 Lip Area.

A successful demonstration of the soil vacuum technology and equipment was conducted in September on an uncontaminated ½-acre site at the Church Ranch property adjacent to Rocky Flats. The soil vacuum technology can cut and remove the fine-grained portion of the top 2 inches of surface soils. Concept Engineering Group, Inc. conducted the field testing.

On average, soil 1 ½ inches deep was excavated per pass of the vacuum head at a coverage rate of 350 square feet per hour and an excavation rate of 0.26 bulk cubic feet per minute. Over a 25-foot-square plot, an average of 2,000 pounds of fine material was removed in 2 hours of vacuuming time. All of the excavated material was routed by hose and retained in the Lift Liner containers. A Phase II demonstration is being evaluated for a "hot" test on a sample acre at the 903 Lip Area sometime in the spring of 2003.

Under Building Contamination 889

Building 889 was once used to decontaminate surplus equipment contaminated with low levels of depleted uranium and beryllium, and to compact HEPA filters, combustible waste, and packaged compacted waste. Plutonium contaminated material from the Building 776 fire was brought into the facility for processing. Decontamination operations were curtailed by 1987, and the building was decontaminated and decommissioned in 1996.

Characterization and remediation work was conducted at the Building 889 site from April through August as an accelerated action pursuant to an approved ER RSOP Notification. The data indicated that there was no contamination. The Building 889 slab was removed, as well as the footer walls, footers, and portions of the concrete pillars. These items were surveyed and disposed of at an off-site sanitary landfill. Two large transite air ducts were also removed. Water found in the ducts was pumped to a tank and sampled. Based on the results, the water was taken to the Building 891 wastewater treatment plant. All the underground utilities, tanks, and a portion of the original process waste line were also removed. Soil within excavations was sampled and found to be uncontaminated. Therefore, no soil that was sampled was removed. Excavations were then backfilled, and the area was graded and reseeded. A draft closeout report of under-building contamination 889 is currently being revised based on comments from regulatory agencies.

Under Building Contamination 886

Building 886 was a critical mass laboratory where criticality experiments were performed on a variety of fissile materials to establish criticality limits and ensure safe handling and processing during Site operations. Highly enriched uranium was introduced into the building, and experiments were performed on enriched uranium metal and solutions, plutonium metal, and low-enriched uranium oxide.

Characterization and accelerated action activities occurred at under-building contamination 886 between March and June pursuant to an approved ER RSOP. Characterization sampling results indicated that no contamination above the RFCA Tier I action levels was found, and there was no need to remove surface or subsurface soils. The accelerated action involved removal of the Building 886 slab, removal of the Building 828 sump and tanks, and removal of process waste lines. A draft closeout report of under-building contamination 886 is currently being revised based on comments from regulatory agencies.

Original Landfill facing the Site

Five-Year Review

Rocky Flats Field Office completed the first Site-wide Comprehensive Environmental Response, Compensation, and Liability Act Five-Year Review in September. The scope of this first review included the Operable Unit 1 and Operable Unit 3 Corrective Action Decisions/Records of Decision and accelerated actions completed through fiscal year 2001. The review concluded that the remedies for the Operable Units are protective and that accelerated actions have addressed the immediate hazards. For the most part, accelerated actions are functioning as intended with deficiencies noted in the Five-Year Review Report.

Original Landfill

The Original Landfill was used as the disposal site for general and construction waste for the Rocky Flats Plant from 1952 to 1968. The landfill is an approximately 20-acre site located just south of the Industrial Area. Over the years the Original Landfill has been investigated and characterized extensively. One apparently localized and stationary area of uranium contamination was discovered. Based on this information, planning for remediation of the Original Landfill is ongoing. Remediation is complicated by the location of the Original Landfill on a steep slope near Woman Creek, encroaching on Preble's Meadow Jumping Mouse habitat.

Four alternatives are currently being considered for the Original Landfill:

1. **no action;**
2. **site stabilization, cut, fill, and cover;**
3. **site stabilization and cover; and**
4. **complete excavation and waste removal.**

For alternative 4, both off-site and on-site waste disposal is being considered. A decision document is currently being prepared including an alternatives analysis. The decision document is expected to be released for public comment during the spring of 2003 followed by the selection of the preferred alternative. Based on the selected alternative, a design will be prepared. Construction should begin in the spring of 2004 and be completed approximately one year later.

Present Landfill

The 20-acre Present Landfill area is located in the Rocky Flats Buffer Zone, north of the Industrial Area. The landfill was operated from 1969 to 1998 as a disposal facility for solid wastes, such as construction and demolition debris, office trash, paper, personal protective equipment, rags, scrap metal, used filters, empty waste containers, and electrical components. The landfill also received materials containing polychlorinated biphenyls; small amounts of beryllium particulate matter; hazardous waste streams such as paints, solvents, and foam polymers; asbestos-containing material; and sludge contaminated with radionuclides.

The Present Landfill is a Resource Conservation and Recovery Act interim status unit and is being closed in accordance with the Rocky Flats Cleanup Agreement and applicable closure and post-closure requirements of RCRA and the Colorado Hazardous Waste Act. The draft Interim Measures/ Interim Remedial Action decision document proposed that closure requirements be met by constructing an evapotranspiration cover on the Present Landfill. An evapotranspiration cover relies on the natural processes of soil storage and plant uptake of moisture to minimize or eliminate the infiltration of precipitation into the waste and the consequent formation of landfill leachate. Specific criteria utilized for the cover design are based on those of a RCRA Subtitle C hazardous waste disposal facility. Final design is expected to be complete in March 2003, after which construction will commence. Project completion is anticipated to be in the fall of 2003.

Original Landfill

Solar Evaporation Ponds

The five Solar Evaporation Ponds, previously located in the northeastern portion of the original Protected Area, were used to process the Site's liquid waste streams from 1953 to 1986. The Solar Evaporation Ponds stored and evaporated process waste water containing nitrates, neutralized acidic process waste, and low-level radioactive isotopes.

The Solar Evaporation Ponds were granted interim status under the Resource Conservation and Recovery Act and the Colorado Hazardous Waste Act by the Colorado Department of Public Health and Environment pursuant to an August 1986 Compliance Agreement. The RCRA Corrective Action of the five empty ponds and associated areas of concern was documented and accomplished under a Proposed Action Memorandum and ER RSOP Notifications.

All utilities, building slabs, equipment associated with previous pond activities, and several areas exhibiting elevated concentrations of contaminants in surface soils were removed, packaged and disposed of off-site. The previous location of the Solar Evaporation Ponds is now filled and graded and is awaiting spring precipitation for reseeding. A ground water collection and treatment system, known as the Solar Ponds Plume system, was installed in 1999 under a previous accelerated action Interim Measures/Interim Remedial Action decision document to address associated contaminated ground water. The Solar Ponds Plume system will remain in operation until nitrate and uranium concentrations in the plume reach levels which will not compromise water quality in North Walnut Creek.

Solar Evaporation Pond 207C sludge removal

Solar Evaporation Ponds Remediation Project

HABITAT MANAGEMENT

The Rocky Flats Site is home to habitat unique to the Front Range area of Colorado. The approximately 6,000-acre Buffer Zone contains habitat for a Federally Listed Threatened Species as well as a diverse population of other animals. The vegetation community contains remnants of xeric tallgrass prairie species that once existed along the Front Range and large sections of eastern Colorado. Each year the viability and stability of biota and vegetation communities are monitored through natural resource surveys. This survey data serves as the foundation of the natural resource management program against which the closure activity success will be measured. The following paragraphs describe the year's accomplishments in habitat management at Rocky Flats.

Vegetation Management

Noxious weeds are one of the greatest threats to Rocky Flats Buffer Zone native plant communities and to the animals that depend on those communities. Noxious weeds are exotic (non-native) plants mainly from other continents. Like many regions of the nation, the Rocky Flats Buffer Zone faces a serious threat from these invading foreign plants.

Before 1990, it was rare to find diffuse knapweed on the Site. By 1997, diffuse knapweed had become a very serious problem in the Buffer Zone. Starting in 1998, the Site followed the lead of nearby Boulder County to the north and contracted with an aerial herbicide applicator to aggressively attack the diffuse knapweed invasion. Aerial application started in the spring of 1999 and continued at the rate of roughly 1,000 acres per year in the spring of 2000 and 2001. In 2002, the Site reduced the air application and increased ground-based application of herbicide.

Diffuse knapweed overruns native vegetation at Rocky Flats

The Site, with the support of the U.S. Fish & Wildlife Service, Texas A & M University and the Colorado Department of Agriculture, as part of an integrated weed control program, released additional numbers of biocontrol insects to control diffuse knapweed. The 2002 field surveys showed insect population increases and visible effects on the diffuse knapweed plant community. Other biocontrol insects were released in 2002 in an attempt to control Dalmatian toadflax, Canada thistle and field bindweed.

Preble's Meadow Jumping Mouse

Preble's Meadow Jumping Mouse

The Preble's meadow jumping mouse (Preble's mouse) is the only year-round resident at Rocky Flats protected by the federal Endangered Species Act. Since 1991, all drainages on the Site have been surveyed for Preble's mice, with intensive trapping efforts directed toward the main channels of Rock Creek, Walnut Creek, and Woman Creek. The 2002 field effort to monitor the Preble's mouse at the Site focused on confirming the presence of the mouse in the Rock Creek drainage. Live trapping was conducted over a two-week period during the first part of June. Preble's mice were captured at three of the four trapping locations in Rock Creek for a total of 12 mice. The results of this trapping effort confirmed the presence of a stable population of the Preble's mouse in the Rock Creek drainage at the Site.

Habitat Protection

In 1999, an Integrated Natural Resources Management Plan and Environmental Assessment was jointly prepared with the U.S. Fish and Wildlife Service for management of the Rock Creek Reserve, a portion of the Site set aside by the Secretary of Energy for protection and management of the unique habitats found there. This plan provides the guidance for protection and enhancement of the natural resources in the Reserve as well as serving as a template for management of other areas in the Rocky Flats

Wild Iris

Buffer Zone. The U.S. Fish and Wildlife Service remains involved in decisions affecting management of natural resources in the Reserve and the remaining portions of Rocky Flats as the Site is transitioned to a National Wildlife Refuge. Pursuant to this plan, U.S. Fish and Wildlife Service personnel removed large-mouth bass from the Lindsay Ranch pond in the Rock Creek drainage in October 2002. This was done to facilitate the reintroduction of native prairie fish species such as the northern redbelly dace. The reintroduction of native species (which would have been eaten by the bass) is expected in 2003.

Wetlands

As the Site moves toward closure and cleanup actions are evaluated, the potential impacts to existing on-site wetlands are becoming much clearer. The off-site Standley Lake wetlands, constructed by the Woman Creek Reservoir Authority for DOE, will serve as mitigation acres for impacted wetlands. The Environmental Protection Agency and U.S. Corps of Engineers have inspected the site and agree it is a functioning wetland. Final approval of the wetland banking system will be obtained during 2003 and acres from that constructed wetland will be credited into that bank. Additional mitigation acres may be necessary as cleanup continues. DOE is actively exploring options for obtaining wetland credits along the Platte River Basin. DOE's primary consideration continues to be avoiding impacts to existing wetlands as much as possible.

Rocky Flats National Wildlife Refuge Act

Memorandum of Understanding: The Rocky Flats National Wildlife Refuge Act requires completion of a Memorandum of Understanding between the DOE and the Department of Interior addressing the process for transition of administrative jurisdiction of the land for the Refuge. The Act requires publication of the Draft Memorandum of Agreement in the Federal Register by December 27, 2002, with publication of the Final Memorandum of Agreement by June 27, 2003. The Rocky Flats Field Office and the US Fish and Wildlife Service began the Memorandum of Agreement negotiations in April 2002. The Draft Memorandum of Agreement has been forwarded to the respective Washington DC offices of the DOE and DOI for finalization of the negotiations prior to publishing.

Comprehensive Conservation Plan: The Rocky Flats National Wildlife Refuge Act requires the Department of Interior to complete a Comprehensive Conservation Plan that describes how the Rocky Flats National Wildlife Refuge will be managed. The U.S. Fish and Wildlife Service developed a public involvement process to ensure interests and concerns of stakeholders and the public were obtained to be addressed in the Comprehensive Conservation Plan. In conjunction with the Comprehensive Conservation Plan, an Environmental Impact Statement will be completed in compliance with the National Environmental Policy Act. The U.S. Fish and Wildlife Service conducted a series of focus group meetings in October 2002 and input obtained from the public will be utilized to develop alternatives for management of the refuge, which will be analyzed in the Environmental Impact Statement. The Act requires the Comprehensive Conservation Plan to be complete by December 27, 2004.

Twin fawns and their mother graze peacefully at Rocky Flats

ROCKY FLATS CLEANUP AGREEMENT

The Rocky Flats Cleanup Agreement (RFCA) was negotiated among DOE, the Environmental Protection Agency, and the Colorado Department of Public Health and Environment in 1996 to guide the process of selecting accelerated cleanup action remedies for the Site. The RFCA requires that milestones be established each year to measure progress toward completion of the RFCA Vision and interim end state.

Fiscal Year 2002 Rocky Flats Cleanup Agreement Milestones

In 2001, the RFCA parties established an innovative framework for measuring RFCA regulatory milestones. The framework was based on earned value (EV) derived from the closure project baseline. Earned value is an industry-accepted tool for measuring schedule progress on a project. The framework is illustrated in the figure below. For 2002, the RFCA milestones were based on 50 percent of the earned value scheduled in each of four categories of regulated activities: decontamination and decommissioning, low-level waste shipments, transuranic waste shipments, and environmental restoration. The 50 percent represents approximately six months of schedule slippage.

RFCA EARNED VALUE FRAMEWORK SUMMARY

FY01	FY02	FY03
FY02 MILESTONE TO COMPLETE 50% OF THE AMOUNT OF REMAINING EV SCHEDULED TO BE COMPLETED DURING FY01*	**FY03 MILESTONE TO COMPLETE 50% OF THE AMOUNT OF REMAINING EV SCHEDULED TO BE COMPLETED DURING FY02**	**FY04 MILESTONE TO COMPLETE 50% OF THE AMOUNT OF REMAINING EV SCHEDULED TO BE COMPLETED DURING FY03**
D&D Complete D&D activities equiv. to 50% of sched. D&D earned value	D&D Complete D&D activities equiv. to 50% of sched. D&D earned value	D&D Complete D&D activities equiv. to 50% of sched. D&D earned value
LLW Complete LLW activities equiv. to 50% of sched. LLW earned value	LLW Complete LLW activities equiv. to 50% of sched. LLW earned value	LLW Complete LLW activities equiv. to 50% of sched. LLW earned value
TRU Complete TRU activities equiv. to 50% of sched. TRU earned value**	TRU Complete TRU activities equiv. to 50% of sched. TRU earned value*	TRU Complete TRU activities equiv. to 50% of sched. TRU earned value*
	ER Complete ER activities equiv. To 50% of sched. ER earned value	ER Complete ER activities equiv. To 50% of sched. ER earned value

* 50 percent of EV in execution year carried forward into FY+1 must be completed before credit for FY+1 (50%) D&D, LLW, TRU and ER credit can be earned. EV from any category from the outyears can be used to cover EV carried over from one FY to FY+1. 50 percent considered 6 months schedule slippage.

** TRU earned value credits ½ EV for characterization and ½ EV for actual shipping.

The Site met or exceeded all of its RFCA milestones for 2002 as summarized in the following table. Since the Site completed excess amounts of EV (carryover) in three categories, decontamination and decommissioning (D&D), low-level waste (LLW), and Environmental Restoration (ER), the surplus will be applied as follows:

- **The surplus of $32.64 M fiscal year 2002 D&D EV will be applied to FY 2003 D&D EV. This means that in FY 2003, the D&D milestone has been met, effective October 1, 2002.**
- **Since the Site exceeded 100 percent of the FY 2002 scheduled LLW shipments; $590,000 of the $10.13 M surplus will be applied to the remaining 50 percent aggregate FY 2002 shortfall, thereby completing all 100 percent of FY 2002 EV, and allowing the Site to immediately begin crediting FY 2003 EV. The remaining $3.62 M of surplus EV will be applied to the FY 2002 LLW category.**
- **All FY 2002 transuranic waste EV shortfall ($90,000) will be covered by surplus EV from the LLW category as described above.**

Proposed Modifications to Attachments to the Rocky Flats Cleanup Agreement and Radionuclide Soil Action Levels

The RFCA parties released proposed modifications to RFCA for public review and comment November 12. The proposed modifications reflect DOE, closure project contractor, and regulatory agency dialogue with the community during the past two years related to establishing new Radionuclide Soil Action Levels (RSALs) for plutonium, americium and uranium. This dialogue included consideration of technical and policy issues related to adopting a consistent risk-based approach for accelerated actions for surface soil, subsurface soil and water.

The new proposed RSALs are in response to new technical information, changes to regulations and Environmental Protection Agency guidance, and public concern over the interim RSALs selected by the RFCA Parties in 1996. The RFCA Parties are

RFCA MILESTONE ACHIEVEMENTS

MILESTONES	2001 CARRYOVER ($M)	2002 MILESTONE ($M)	2002 PROJECT PWA ($M)	2002 ACTUAL EV ($M)	2002 CARRYOVER (SHORTFALL) ($M)	2002 SCOPE REMAINING ($M)	2003 MILESTONE ($M)	2002 CARRYOVER DISTRIBUTION ($M)	ADJUSTED ARRYOVER
D&D	$ 2.90	$ 20.70	$ 47.17	$ 79.81	$ 32.64	$ -	$ 28.10	$ (4.55)	$ (4.55)
LLW	$ 7.99	*$ -	$ 6.54	$ 13.40	$ 10.13	$ -	$ 5.91	$ (4.22)	$ (3.63)
TRU	$ -	$ 0.81	$ 1.63	$ 1.04	$ (0.59)	$ 0.59	$ 0.75	$ -	$ -
ER	$ -	$ 0.26	$ 0.54	$ 1.36	$ 0.83	$ -	$ 0.55	$ (0.27)	$ (0.27)
Remaining EV						$ 0.59			

* Carryover from 2001 LLW EV was applied to 2002 LLW scope and the 2001 TRU shortfall. This means that the $3.27M 2002 LLW milestone was already accomplished at the beginning of the year and the 2001 TRU shortfall was completed. Thus, the actual 2002 milestone for LLW =$0.

also proposing new, more conservative soil action levels for other contaminants of concern. The RSALs and the other soil action levels are based upon protection of the anticipated future land user, a wildlife refuge worker, to achieve an excess cancer risk of not greater than one in 100,000. This risk is at the midpoint of the acceptable lifetime excess cancer risk range promulgated pursuant to CERCLA. The proposed RSAL for plutonium 239/240 is 50 picocuries per gram, which is more than 10 times lower that the current comparable RFCA Radionuclide Soil Action Levels.

Contamination extending into the subsurface will be evaluated and an accelerated action decision made using a Soil Risk Screen to consider the pathways by which the contamination could present an unacceptable exposure risk (i.e., greater than one in 100,000) to the anticipated future user.

The documents released for public comment are:

- **RFCA Attachment 5, Action Levels and Standards Framework for Surface Water, Ground Water and Soils;**
- **RFCA Attachment 10, RCRA Closure for Interim Status Units; and**
- **RFCA Attachment 14, Original Process Waste Lines Subsurface Soil Approach (new).**

A Technical Basis Document summarizing the proposed modifications and the Parties' rationale for proposing them was also issued to inform the public regarding the key aspects of the proposed modifications and to facilitate an effective public review process. The results of the RSALs review is documented in five Task Reports compiled as Results of the Interagency Review of Radionuclide Soil Action Levels, September 30, 2002.

These RSALs and the soil action level changes for other contaminants are predicated upon the adoption of the integrated risk-based approach in the proposed RFCA modifications for surface and subsurface contamination. The proposed changes reflect the following four underlying principles:

- **Removal of greater amounts of surface soil contamination will be triggered, because it is easily accessible to a surface future user, may easily migrate, and removal to reduce these risks is preferred;**
- **Removal of subsurface contamination, which is less accessible and less mobile than surface soil contamination, will be triggered based on the potential pathways of exposure that present a risk;**
- **More surface soil removal and consideration of subsurface pathways will better serve to protect surface water quality to meet surface water standards so that surface water is suitable for all uses; and**
- **Recognition that institutional controls and long-term stewardship will be applied as appropriate to control residual risks because RFCA accelerated actions are not expected to result in removal of all contamination.**

The proposed modifications reflect an integrated risk-based approach that will result in more risk reduction at the Site than would be achieved under the current RFCA and will contribute to the efficient performance of the final remedy. The RFCA Parties believe this can be implemented within the current projected closure project budget resources for the Site.

The proposed modifications and the Technical Basis Document were prepared jointly by the RFCA Parties. However, the proposed modifications are subject to Environmental Protection Agency and Colorado Department of Health and Environment approval after consideration of comments and incorporation by DOE of any changes deemed necessary for approval. The RFCA Parties will prepare a comment responsiveness summary that shows how comments were considered in the final RFCA modifications. The final modifications are expected to be approved in early 2003.

LONG-TERM STEWARDSHIP

Workers observing wetlands habitat in the Rocky Flats Buffer Zone

As the closure of Rocky Flats nears, issues relating to the long-term stewardship of the Site continue to be of great importance to the community. Long-term stewardship refers to those activities that will be needed following closure to ensure that the cleanup remains protective and compliant with regulatory requirements. Environmental stewardship activities are expected to include environmental monitoring, maintenance of engineered controls such as landfill covers and passive groundwater treatment systems, use of institutional controls to restrict access or activities, natural resources management, and record keeping. These activities will be needed because some residual contamination is expected to remain at Rocky Flats after closure.

During the past year, Rocky Flats Field Office has taken a number of steps to ensure that a robust long-term stewardship program will be in place after closure. Rocky Flats Field Office, with input from the community, regulators, and DOE Headquarters, continued drafting the Rocky Flats Long-Term Stewardship Strategy. The Strategy contains general long-term stewardship policies, as well as more specific plans for individual stewardship items such as use of institutional and engineered controls, environmental monitoring, and record keeping. Some of the underlying long-term stewardship policies contained in the Strategy are:

1. **conduct a thorough, risk-based cleanup predicated upon protective cleanup levels, factoring long-term stewardship into remedy decisions;**
2. **carefully select, as necessary, reliable engineering controls and robust institutional controls to minimize risks posed by residual contamination;**
3. **institute and maintain a record-keeping system that will allow future users to make informed decisions about Site management; and**
4. **perform regular reviews of the protectiveness of the cleanup, as well as advances in remedial technology.**

The Strategy explicitly recognizes the need for evaluation of stewardship implications during the remedy selection process, and envisions that certain long-term stewardship activities may take the form of regulatory commitments.

Looking at the Industrial Area from the Buffer Zone

The Rocky Flats Field Office has worked to ensure that its emerging long-term stewardship policies are reflected in regulatory documents. Examples include closeout reports for actions conducted under the auspices of the RFCA Standard Operating Protocol, and decision documents such as the Interim Measure/ Interim Remedial Action report prepared for the Present Landfill project. Finally, the proposed revi-sions to RFCA Attachment 5 contain language that discusses potential long-term stewardship activities, including the types of institutional controls that could be in place after closure.

The Rocky Flats Field Office continues to maintain a close working relationship with the community regarding long-term stewardship issues. This dialogue has been maintained primarily through the Stewardship Working Group, a joint effort between the Rocky Flats Citizens Advisory Board and the Rocky Flats Coalition of Local Governments. Draft chapters of the Long-Term Stewardship Strategy have been shared with members of the Working Group as they have been developed, as have regulatory documents with stewardship implications. This interaction has been a positive and productive effort, which Rocky Flats Field Office anticipates will continue for the foreseeable future.

THE ROCKY FLATS LEGACY PROJECT

Buffer Zone resident — buck in velvet .

The Legacy Project is working to capture and preserve the innovative analyses, strategies, methods, and decisions utilized at Rocky Flats to support the accelerated closure effort. These analyses, strategies, methods, and decisions will be presented using multi-media and descriptive narratives appropriate for a wide variety of audiences including other cleanup sites, community stakeholders, Congress, and regulatory agencies.

The Department of Energy's Environmental Management cleanup and closure mission involves unique management, regulatory, technical, and administrative challenges that differ from typical operating situations or other environmental cleanups. Once a controversial, even notorious, DOE site, Rocky Flats currently serves as a model cleanup project for the DOE complex. A complicated and focused accelerated closure strategy is required for the success of the Rocky Flats Closure Project.

Cowboy's Delight

Given the nature of the challenge facing Rocky Flats, the closure strategy took form gradually, through iterative steps, and sometimes in divergent and inconsistent directions. Based on the small failures and important successes over time, the path to accelerated closure became more clearly defined. The success at Rocky Flats depends upon implementing innovative, high-risk strategies in regulatory reform, contract reform, and strategic planning. The Legacy Project attempts to document the decisions and strategies that are successful in accomplishing the accelerated cleanup and closure of Rocky Flats.

SAFETY PROGRAMS

The Rocky Flats Field Office has increased its focus on safety commensurate with the level of work being performed in the deactivation, decommissioning and demolition of buildings. The Rocky Flats Field Office has been concerned about safety trends in specific areas including electrical, recordable case rates, and lost workday case rates.

The Rocky Flats Field Office and Kaiser-Hill identified five of the most potentially hazardous areas for the type of work currently under way. These five areas are:

1. **falls by individuals,**
2. **use and control of heavy equipment,**
3. **hoisting and rigging to remove elevated structures and equipment,**
4. **fire protection as systems are being deactivated and buildings torn down, and**
5. **electrical incidents.**

The use of heavy equipment around high-voltage elevated wires increases the risk of electrical incidents. Additionally, imperfect knowledge of building structural components can lead to serious safety consequences because it is difficult to determine whether a building retains any of its energized systems before cutting into walls or tearing it down.

The Safety Programs organization continues vigilant oversight of contractor activities through subject matter experts, daily presence of facility representatives in buildings during most activities, and participation in Safety Assessment Center management of incidents as they occur.

SAFETY STATISTICS

METRICS (all site contractors)	**GOAL**	**2001 ACTUAL**	**2002 ACTUAL**
Accidents resulting in 2 or more lost workday cases	0	0	0
Recordable case* rate (12 month rolling average)	Below 1.0	2.44	2.5
Lost Workday case rate (12 month rolling average)	Below 0.5	1.5	1.01
Level 1 or 2 technical safety requirement violations per calendar year	Below 12	4	3
Level 3 criticality infractions in a calendar year	6	4	1
Skin Contaminations > 1000 dpm per 100 cm^2 per calendar year	10	7	11

* Defined as all the work-related deaths and illnesses, and those work-related injuries that result in a loss of consciousness, restriction of work or motion, transfer to another job, or require medical treatment beyond first aid.

Rocky Flats Field Office attendance at pre-evolution briefings, plan-of-the-day meetings, and fact-finding meetings has visibly reinforced the Rocky Flats Field Office commitment to Site safety. Insistence on corrective actions and close monitoring of these corrective actions through closure are helping to achieve continual improvement and implementation of lessons learned.

Although safety metrics show that the Site safety performance has remained relatively stable from 2001 to 2002, the Rocky Flats Field Office still has concerns. Both the recordable case and the lost workday case rates are above the goals set by the Site. Both of these rates are indicative of incidents, however small, that are outside expected levels and could lead to more serious accidents or fatalities.

Additionally, these indicators point to a lack of full recognition of potential hazards and identification of appropriate personal protective equipment for performing work. Proper hazard identification and selection of appropriate protective equipment are important to safely conduct the dramatically increasing amount of complex work being done.

Site Safety Continuous Improvement Plan

The Site Safety Continuous Improvement Plan (SSCIP), developed and implemented by Kaiser-Hill management, is designed to ensure the highest standard of safety performance and to adapt to the ever-changing conditions faced during the closure of the Rocky Flats Site. As such, the SSCIP is used in support of ongoing safety improvement efforts. The SSCIP identified 75 actions to address safety performance, and new issues of site-wide importance are added as they are identified. The SSCIP also incorporated the use of an Integrated Assessment Schedule (IAS). This tool is used by both DOE and the contractor to assess the adequacy of controls for a variety of safety hazards. The IAS also assists the Site in more efficient use of its resources by reducing the number of redundant assessments.

Workers wearing personal protective equipment.

Price Anderson Actions

The Price-Anderson Amendments Act (Act) provides for DOE to use enforcement actions against a contractor for unsafe actions or conditions that violate nuclear safety requirements for protecting workers and the public. The Act encourages contractors to self-report problems that they have discovered and corrected. Kaiser-Hill entered seven reports of noncompliance into the DOE database for tracking in 2002. This compares to 16 reports in 2001, 25 reports in 2000, 22 reports in 1999, and 15 reports in 1998.

No enforcement actions were taken against Kaiser-Hill this fiscal year. However, an enforcement letter was issued to Kaiser-Hill on June 19, 2002, to convey concerns regarding the evaluation of an October 2001 event. The review identified weaknesses in the contractor's as-low-as-reasonably-achievable practices for planning and controlling work and the bioassay decision process. Corrective actions, including additional training, have been identified and implemented.

Decommissioning Basis of Operations

The Site has been vigorously pursuing full compliance with the requirements of Nuclear Safety Management found in 10 Code of Federal Regulations 830, Subpart B. At this time, all but a few Site nuclear facilities have an approved safety basis document that is compliant with these requirements. All nuclear facility authorization

bases are anticipated to be approved or submitted by the April 10, 2003, deadline. The specific requirement of 10 Code of Federal Regulations 830.207(a) is that the compliant safety basis documents must be submitted to the DOE by the deadline.

Beryllium Program

The Rocky Flats Beryllium Program is designed to protect workers and the environment from beryllium exposure. Kaiser-Hill has submitted its updated Chronic Beryllium Disease Prevention Program as implemented through Chapter 28 of its Occupational Safety and Industrial Hygiene Program Manual.

Two cases of Chronic Beryllium Disease were diagnosed in the current worker population since January 1, 2002. However, a total of 18 workers with Chronic Beryllium Disease are still employed on-site. Five new cases of beryllium sensitization are included in the total of 48 cases of sensitized workers employed on-site. There are 991 Qualified Beryllium Workers and 400 Screened Beryllium Workers for a total of 1,391 workers qualified to work in beryllium contaminated areas above the Site Control Level. In addition, approximately 2,000 Beryllium Associated Workers (workers who have worked sometime previously in beryllium areas and had potential exposure to beryllium, but have not tested positive for Beryllium Sensitization) are part of the worker population.

From January 1 to November 19, 1,937 medical surveillances were performed, including Lymphocyte Proliferation blood tests for sensitivity to beryllium. A total of 11,908 surface samples, 11,828 air samples, and 12,227 personal breathing zone samples were analyzed in the same time frame.

Thirty-two workers were involved in 17 events in which the beryllium action level was exceeded. In most cases, the individuals were wearing respiratory protection and personal protective equipment. No test results have indicated beryllium sensitization to date. The workers continue to be monitored.

In conjunction with ongoing efforts to protect workers, the Rocky Flats Field Office has also been extensively involved in assisting the Department of Labor's implementation of the Energy Employees Occupational Illness Compensation Program Act.

Occupational Medicine

The Occupational Medicine Department continues to make significant progress. It recorded 20,769 Occupational Medicine Department encounters, including the 1,937 Lymphocyte Proliferation blood tests for beryllium sensitization mentioned above. A back-log still exists of past due tests to be performed on Beryllium Associated Workers. The Department has provided baseline and medical surveillance for the large number of new Beryllium Workers that have been added for deactivation and decommissioning work during the past year. The Rocky Flats Institutional Review Board met four times since January 1, and has reviewed and approved four studies associated with the health and exposure records of Rocky Flats workers.

Fire Protection

A Site-wide wireless fire alarm transmitting system was placed in service to phase out the cable system and facilitate the decommissioning and demolition of Site buildings. The first assessment of the Fire Department was conducted using last year's newly implemented Baseline Needs Assessment as a benchmark. The findings and actions are expected to further support full implementation of the Baseline Needs Assessment.

The Fire Department actively participated in fighting area wildfires during Colorado's second season of severe drought. In general, wildfire issues were aggressively addressed, including developing new and revised on-site and interagency (federal, state, and local) operating agreements, sponsoring training classes, and hosting a regional table-top drill.

Specific language was incorporated into Authorization Basis documents that emphasized use of Site Fire Protection Program requirements as facilities are transitioned from radiological status.

As former radiological requirements documents become moot, this new language will assure facility managers and support staff are aware of their continuing fire protection responsibilities.

Emergency Management

The Emergency Preparedness program continues to maintain an effective capability to respond to the full spectrum of credible emergency situations at the Site. The emergency drill and exercise program has been effective in training and ensuring the readiness of the emergency response organization.

The Site conducted five site-wide exercises, four of which were hazardous materials scenarios and two of which included security/bomb threat scenarios involving Site facilities. One of the security/bomb threat scenarios was performed as an HQ-conducted No-Notice-Exercise that tested response to a radiological/biological/explosives device, following the anthrax and terrorist events occurring around the country. Adequate readiness was demonstrated, and the Site met all established objectives for the exercise.

A wildland fire table-top exercise was conducted in March 2002 with local off-site response agencies. The exercise was a follow-up to improvements identified as a result of the DOE Headquarters Offices of Environment and Health and Independent Assessment, Initial Joint Review of Wildland Fire Safety at DOE Sites, conducted in December 2000. The wildland fire simulated for the exercise started off-site and moved on-site. This created a valuable training session on wildland fire response incident command interface and interoperability with multiple off-site fire response jurisdictions. Following these exercises, the Site identified and implemented improvements in consequence assessment, emergency preparedness, and response.

Hazardous materials exercises (which include radiological) were also conducted in individual Site facilities, reflecting scenarios contained in the individual facility hazard assessment planning documents.

Safely stored chemicals in Building 707

Hazard assessment planning documents for Site facilities continue to be revised and reduced in number as hazards are eliminated through facility decontamination and decommissioning activities.

The Site Emergency Operations Center was activated once in November 2002 in response to a small spill of waste water (approximately 25 gallons). Most of the spill was confined within secondary containment or splattered in the immediate area and was immediately cleaned up. The area was monitored for radiological contamination and there were no exposures.

The DOE Headquarters Office of Environmental Management conducted an assessment of Rocky Flats Field Office oversight of the Site Emergency Management Program and identified no deficiencies or weaknesses. However, some recommendations were provided for strengthening the assessment component of the emergency management program.

Electrical Safety

Several significant electrical events occurred even though Rocky Flats Field Office and Kaiser-Hill partnered to establish a Center of Excellence to improve electrical safety. During excavator movement associated with demolition of Building 886 in April, the excavator hit a 13.8-kilovolt overhead power line with no injuries. In October a cut was made into a conduit containing a 480-volt line that was not marked for removal. Four instances of 120-volt lines being either nicked or cut accidentally were recorded. During deactivation and decommissioning strip out, a 24-volt wire was cut, disabling a sprinkler system.

Fortunately, all of these incidents, potential near misses, caused only minor injuries at most. The Rocky Flats Field Office insistence on the development and use of Standing Order 77, Electrical Safety for Cutting Wires, and the electrical stand-down imposed on the contractor have had a major impact on maintaining electrical safety this past year. With the potential risk in mind, electrical work was elevated to the list of the five most potentially hazardous work practices on-site.

Radiation Protection

The Radiation Protection Program assures that the number of personnel exposures to penetrating radiation and radioactive contamination is maintained as low as reasonably achievable below established standards. Consistent with this objective, the Site collective dose increased 11 percent to a projected 262 rem (a standard unit of radiation measurement) in calendar year 2002 compared to 238 rem in 2001. Although this is an increase, it is lower than anticipated, and it is expected to be a one-year anomaly due to the accelerated removal of residues and packaging of high-dose waste. The hours of work done in radiological areas increased 67 percent in the first three quarters of 2002, compared to the same time period in 2001. Radiological violations decreased 49 percent in 2002 compared to the same time period in 2001.

Criticality Safety

The Criticality Safety Program has supported the transition from nuclear to D&D activities by simplifying controls in most of the major facilities. Considerable progress has been made in developing a technical basis for removing criticality accident alarm systems from the 700 series buildings, since these buildings have undergone characterization for holdup. The plutonium size reduction operation in Building 371 was fully supported by the Criticality Safety program through the development of limits and safety requirements and through performance of safety evaluations.

Quality Programs

The Quality Program accomplished 16 independent assessments, performed two Independent Validation Reviews, and participated in two joint assessments with the contractor. Implementation of the DOE Quality Assurance Program Plan was initiated, and five self-assessments were conducted.

EXPOSURE STATISTICS

DOSE TYPE	2001	2002
Skin Contaminations >1000 dpm/100 cm2	7	11
Internal Depositions	75	117
Collective Internal Dose in mrem	1278	1128

SAFEGUARDS AND SECURITY

Rocky Flats continued to maintain a heightened security posture in 2002 as a result of the terrorist attacks of September 11, 2001. On the one-year anniversary of the attacks, Rocky Flats activated the Emergency Operations Center and further heightened its security posture for a number of days as a precautionary measure. When the anniversary passed without incident, Rocky Flats returned to the pre-anniversary level of heightened security. Rocky Flats continues to work with federal, state, and local agencies to ensure an effective security program, providing protection to the public, the workers, and the environment.

As Rocky Flats moves toward the December 2006 closure date, Safeguards and Security is participating as an integral partner in reaching closure. The Material Control and Accountability staff at Rocky Flats are working closely with receiver sites to resolve any safeguards and security issues that could delay the removal of attractive special nuclear material by the end of 2003. The Rocky Flats Field Office Safeguards and Security Division is working with Kaiser-Hill to develop a plan of the activities necessary to downgrade the last Material Access Area and remove the Protected Area once all attractive SNM has been shipped. With the removal or consolidation of classified material and SNM during the last year, the Safeguards and Security Division has approved reducing the status of a number of Limited Security Areas to Property Protection Areas. These security reductions have further facilitated worker access to cleanup activities.

Security guard conducting random vehicle inspection

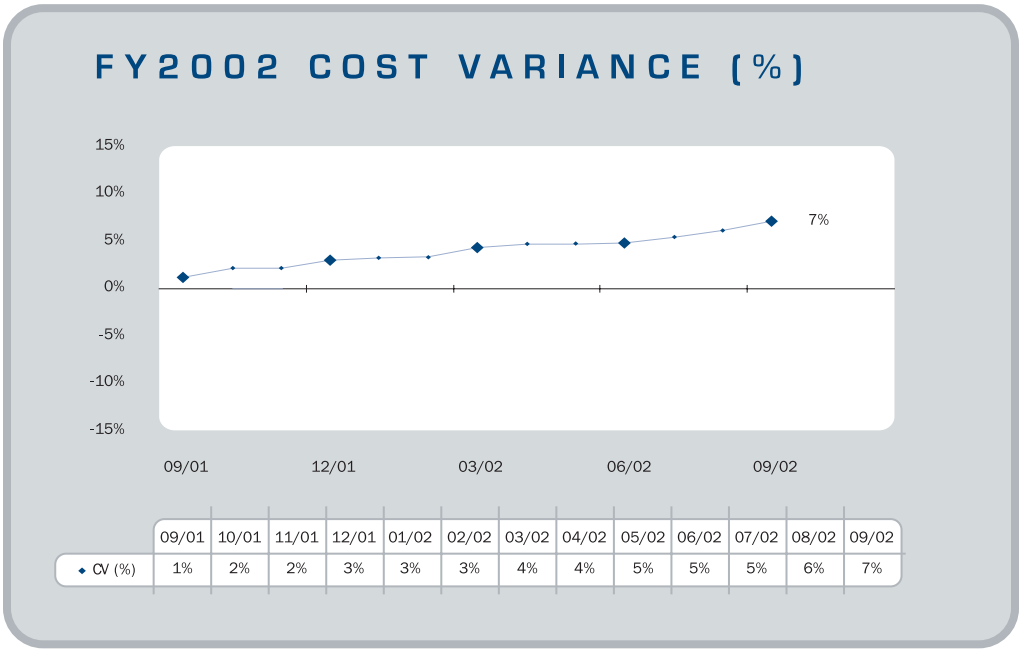
The DOE Office of Independent Oversight and Performance Assurance (OA) conducted an inspection of the Rocky Flats Field Office and Site Safeguards and Security programs in June. The OA provided a final draft of the report to Rocky Flats Field Office management on July 24 that identified the safeguards and security programs as generally effective as a result of sustained management attention and competent staff. Rocky Flats is responding to the recommendations of the OA.

Rocky Flats participated in and hosted a weapons-of-mass-destruction table-top training exercise in August. The DOE Office of Security and the Federal Bureau of Investigations Headquarters jointly conducted the exercise. Also participating were the Rocky Flats Emergency Operations Center, the Denver Office of the Federal Bureau of Investigation, the Federal Emergency Management Agency, the Colorado Office of Emergency Management, the Colorado Department of Public Health and Environment, the 8th Weapons of Mass Destruction Crisis Support Team, five local law enforcement agencies, the City of Westminster, and two local hospitals. The exercise, one of 12 conducted at DOE sites, examined issues that would result at a DOE site from a serious domestic terrorist incident involving weapons of mass destruction. The exercise was an excellent opportunity for interaction among the various federal, state, and local agencies that would respond to such an event.

COST AND SCHEDULE

The Department of Energy uses two key project indicators to determine the health of the closure project in terms of cost and schedule performance. The first widely recognized indicator is cost variance. Cost variance is a measure of the planned cost of the work accomplished versus the actual cost. A positive number indicates the work accomplished cost less than expected, or under-ran the planned budget, while a negative number indicates the work cost more than expected, or over-ran the budget plan.

The closure project started 2002 with a net cost variance of +1 percent, and finished the year with a net cost variance of +7 percent. As the following graph depicts, the cost performance trend showed continual improvement during the year. This continues the positive trend that started in the second half of 2001. The continuing performance improvement is attributed to productivity improvements and working safely.



	09/01	10/01	11/01	12/01	01/02	02/02	03/02	04/02	05/02	06/02	07/02	08/02	09/02
CV (%)	1%	2%	2%	3%	3%	3%	4%	4%	5%	5%	5%	6%	7%

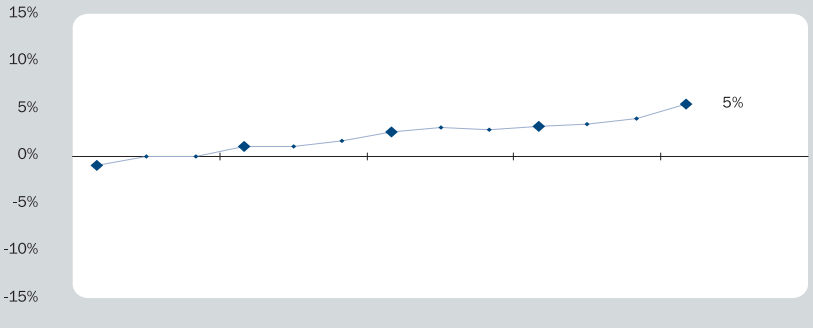
Schedule variance, the second widely recognized indicator, is a measure of how much work was accomplished versus how much work was planned to be accomplished. A positive number indicates more work accomplished than scheduled, or the project is ahead of schedule, while a negative number indicates less work was accomplished than expected, or the project is behind schedule.

The closure project started 2002 with a net schedule variance of +1 percent and finished the year with a net schedule variance of +5 percent. As the following graph depicts, schedule performance showed a steady increase and continued the trend established in the last part of 2001.

This performance improvement is attributed to working safely, thus allowing work to continue without interruption for safety evaluations. The combination of productivity improvements and working safely allowed for the acceleration of work planned later in the project to be accomplished in 2002.

Kaiser-Hill is performing slightly ahead of its plan. The cost variance and schedule variance indicators show that the work accomplished is costing less than planned and is being accomplished sooner than planned, which are very positive indications that the 2006 Site closure goal can be achieved.

FY2002 SCHEDULE VARIANCE (%)



	09/01	10/01	11/01	12/01	01/02	02/02	03/02	04/02	05/02	06/02	07/02	08/02	09/02
CV (%)	-1%	0%	0%	1%	1%	2%	3%	3%	2.8%	3%	3%	4%	5%

OIG FINDINGS

The Office of Inspector General (OIG) has oversight authority for the activities conducted at all DOE facilities and sites.

During the past year the following audit actions have been closed.

OIG 0411

Audit of the Contractor Incentive Program at RFETS

OIG 0425

Audit of DOE's Facility Reuse at Rocky Flats

OIG 0475

Audit of Non-Nuclear Weapons Parts at RFETS

OIG 0554

Audit of Plutonium Stabilization and Packaging System at the Rocky Flats Environmental Technology Site

The following audit report still has open audit actions.

OIG CR-FS-02-02

Information Technology Management Letter on the Audit of the Department of Energy's Consolidated Financial Statements for Fiscal Year 2001

HUMAN RESOURCES

Kaiser-Hill Workforce Transition

The near-term and future workload for Site employees is becoming more clearly defined as the Closure Project continues to achieve accelerated progress. Employees need professional guidance and access to the tools needed for developing their personal career and life plans. It is Kaiser-Hill's objective to ensure that employee career transition goals remain a high priority and that employee transition is integrated with the Closure Project objectives.

Kaiser-Hill has always provided quality and professional transition support to current and past employees. Both the Department of Energy and Kaiser-Hill recognize that an effective Workforce Transition Program is essential to meeting project-specific closure objectives safely. As the final years of the Closure Project come into focus, worker safety, availability, productivity, and adaptability are emerging as significant and difficult tasks to manage. It is the Site's vision that a more comprehensive Workforce Transition Program be established to address this issue. The program must assure that employees exit the Site only when they are no longer required, and that this happens in a planned and uneventful manner. The employees must be proud of their achievements, certain of their futures, and not disillusioned or disgruntled. Kaiser-Hill is in the process of upgrading the current Workforce Transition Program to assure "people closure."

Federal Employee Worker Transition

Balancing the federal workforce, as most Rocky Flats employees work themselves out of a job, is a significant management challenge. Expertise and knowledge possessed by the employees must be retained in order to achieve our mission goals. However, as the closure mission progresses, some skills will no longer be necessary and the number of employees needed to do the job will decline.

The Rocky Flats Field Office recognizes that an effective workforce transition program is necessary for successful mission accomplishment. Providing opportunities for employees to continue in federal service, transfer to the private sector, or to retire remains a high priority with the Rocky Flats Field Office management team.

SITE WORKFORCE EMPLOYMENT LEVELS AS OF SEPTEMBER 30

ORGANIZATION	1999	2000	2001	2002
Rocky Flats Field Office (DOE)	214	196	180	161
DOE Support Service Contractors	56	45	24	32
Kaiser-Hill Company, LLC	1,912	2,123	2,047	1,945
Rocky Flats Closure Site Services	131	148	146	142
DynCorp of Colorado	8	3	2	0
Rocky Mountain Remediation Service	350	209	3	0
Safe Sites of Colorado	401	271	352	260
Wackenhut	296	201	216	281
TOTAL	**3,368**	**3,196**	**2,970**	**2,821**

COMMUNITY OUTREACH

Community Grant Program

As part of the Rocky Flats Field Office commitment to Affirmative Employment Opportunity and Diversity, Rocky Flats Field Office accomplishments for 2002 included the awarding of grants to local community and educational organizations related to the fields of math and science. Through an annual grant program, Rocky Flats Field Office awards grants to organizations that provide minority educational programs. Rocky Flats Field Office's 2002 grant recipients incorporated a diverse spectrum of the community.

University of Colorado at Boulder Success in Engineering through Excellence and Diversity Program: The Success Institute is a program sponsored by the University of Colorado at Boulder and the Mathematics and Engineering Science Achievement Program, which brings students to week-long camp programs at Colorado University to introduce them to the challenges and excitement of engineering. In the world-class Integrated Teaching and Learning Laboratory, minority students receive the opportunity to participate in a comprehensive team project and in a building challenge. This opportunity allows the students to experience hands-on engineering challenges and understand the benefits of a career in the field.

Heritage Institute Young Women in Math & Science: This program provides study guides, suggested reading lists, and practice materials for high school teachers and students to enhance exposure to science and math disciplines not usually offered at the small, rural schools serving Native American populations. This endeavor is accomplished through reporting and evaluation, participation in an "Expanding your Horizons" Conference, and workshops designed to raise teacher awareness.

Denver Zoological Foundation Community Leadership Project: The mission of the Community Leadership Project is to encourage students to work with citizens in the community to plan and implement environmental projects that will directly impact the immediate neighborhood of the school. This method of teaching is called service-learning. This program participates with various inner-city schools and provides hands-on experiences to grade school and middle school children while improving communities.

International Institute for Indigenous Resource Management Internships in Science and Technology: This program focuses on expanding the educational experience of American Indian and Asian-Pacific American science students beyond the horizons of their academic programs by giving them hands-on experience in scientific inquiry. This type of training is of critical importance to indigenous people who are generally overlooked in the mainstream of academic curricula.

Council of Energy Resource Tribes Native American Science and Engineering Internship Project: This internship was developed to enhance the knowledge gained in academe by facilitating the opportunity for students to acquire practical skills related to their major areas of study. To increase representation of Native Americans in the science and math professions, interns are being provided summer-long and year-long work assignments that include both public and private sector employers. Due to the success of these internship programs, many of the students are entering the workforce as mid-level employees upon graduation.

National Wildlife Federation Tribal Lands Conservation Program Internship: The National Wildlife Federation is hosting a full-time, 1-year internship to focus on Colorado Native American communities, Native American high school and college students, and Native American educators. This program concentrates on improving all aspects of the Native American scholastic system.

Fort Valley State University Cooperative Developmental Energy Program (CDEP): Fort Valley State University has developed a program to bring minority students into the mainstream of the science and technology industries. Currently under-represented in the math and science industries, minority students are recruited for the program starting in middle school. This program provides opportunities for those students to attend summer camps and, if they maintain their grade point averages through high school, the opportunity to achieve a five-year dual-degree on full scholarship. Rocky Flats annually hosts students during the summer as part of the work/study aspect of the CDEP.

Community Radiation Program

The Community Radiological and Meteorological Monitoring Program (ComRad) is a cooperative effort among the DOE and communities surrounding Rocky Flats. ComRad provides educational opportunities for students, teachers and local citizens to learn about natural and human-made radiation. The four monitoring stations collect scientific data and provide real-time meteorological conditions. Representatives from the cities of Broomfield, Northglenn and Westminster, Rocky Flats Citizens Advisory Board, and DOE serve as members of the ComRad Oversight Panel. Educational outreach this year included information booths at the Northglenn July 4 Festival, Rocky Flats Family Day, Westminster Fair, and Broomfield Days. Presentations were made to scout troops in Northglenn and at the Broomfield Day Camp.

Rocky Flats 2002 Family Day

In recognition of the contributions made by employees toward closure and in celebration of the 50th anniversary of the Rocky Flats Site, more than 3,000 Rocky Flats workers and family members participated in Family Day 2002.

Participants included more than 200 retirees who came back to see the ever-changing landscape as Rocky Flats accelerates closure. Events included a first-of-its-kind parade down Central Avenue featuring classic cars owned by employees and retirees. Historic bus tours and an old-time picnic added to the festivities. Many exhibits allowed the attendees to observe the progress the Site is making toward closure. A significant event during this exceptional day was a walk through the now-accessible portion of the reconfigured Protected Area, which would not have been possible in the past.

Energy Employees Occupational Illness Compensation Program Act

DOE sponsored an amendment to the Energy Employees Occupational Illness Compensation Program Act of 2000 to assist workers and their families in filing claims. DOE reached agreement with 11 states, including Colorado, outlining a process for information sharing between states and the DOE's Office of Worker Advocacy in order to better facilitate the claims process. Through this amendment, workers or their survivors may apply to the DOE for a determination of whether the worker's illness or death arose from exposure to toxic substances at any DOE facility. A group of independent panels of physicians has been established to review the claims. If a panel finds that a worker's illness resulted from exposure while at work, the DOE will assist the worker in filing a claim with the state, and direct the worker's contractor employer not to contest the claim.

As part of continuing outreach efforts under the Energy Employees Compensation Resource Center in Westminster, the Rocky Flats Field Office established a satellite office on the Rocky Flats site to assist current employees. Caseworkers with the Westminster Resource Center are available to assist on-site employees with questions and provide information about who may apply for benefits that may be available through the state workers' compensation program and occupational illnesses not covered under the law.

PUBLIC PARTICIPATION

Accomplishments in 2002

The year 2002 was a dynamic and fast-paced year for public participation. Community interest groups, local governments, regulatory agencies and the DOE worked together on Rocky Flats Closure Project issues including safety, facility disposition, soil action levels, environmental remediation, long-term stewardship, and the Rocky Flats National Wildlife Refuge.

As facility disposition continues to accelerate, deactivation and decommissioning status tours continue to give stakeholders and the public the opportunity to observe cleanup progress first-hand. Stakeholders, regulators, and media toured

Stakeholder briefing during tour of Building 440

Building 886, the first of the 800 area buildings to be demolished, in February. The tour included a demonstration of hydrolasing, an innovative technique for stripping paint and contaminated materials from walls using high-pressure water. The tour also included Building 881, an irregular shaped multiple level structure built into the side of a hill with three levels underground. Another D&D status tour in June included Buildings 444 and 771, among the most contaminated facilities at Rocky Flats. Building 771 is scheduled for demolition in May 2004. Community members were briefed on the challenges of equipment contaminated with beryllium, asbestos abatement, and equipment size-reduction in Building 444.

The Rocky Flats Cleanup Agreement Focus Group met with the RFCA coordinators every other week for 18 months to provide a community perspective on issues related to the RSAL report. The group completed its review of radionuclide soil action levels for surface soils in mid-year.

The Stewardship Working Group, jointly convened by the Rocky Flats Citizens Advisory Board and the Rocky Flats Coalition of Local Governments, continued their monthly meetings to discuss long-term stewardship at the Site. Rocky Flats Field Office has worked with the Stewardship Working Group on developing a Long-Term Stewardship Strategy that meets the varied interests of the community and the Rocky Flats Field Office. Through the collaborative efforts of the Stewardship Working Group, the regulatory agencies, and Rocky Flats Field Office, a recommendation was incorporated into the Environmental Restoration RFCA Standard Operating Protocol that specific long-term stewardship practices be factored into cleanup decisions.

Stakeholder tour group photo

Stakeholders participated in a significant number of briefings and consultative sessions during the development of and review and comment on numerous decision documents issued in 2002. One of the documents claiming stakeholders' attentions was the Site's first CERCLA Five-Year Review to assess whether established remedies are functioning as designed. Environmental remediation decisions in which stakeholders played a role included removal of asphalt and radionuclide-contaminated soils beneath the 903 Pad, remediation of the Solar Ponds, and the decision regarding installation of an evapotranspiration cover for the Present Landfill.

Quarterly stakeholder meetings continued in 2002 and the new manager, Gene Schmitt, met with congressional staffers, local governments, regulators, and Rocky Flats Citizens Advisory Board and Rocky Flats Coalition of Local Governments members for an informal get-acquainted session. Schmitt also met with stakeholders to present the DOE Budget and the results of the EM Top-To-bottom Review.

In June, the HQ EM Office of Independent Oversight and Performance Assessment briefed stakeholders on its goals to provide independent oversight of safeguards and security, environment, emergency management, and safety and health programs throughout the DOE complex.

The U.S. Fish and Wildlife Service began a series of National Environmental Policy Act scoping meetings to engage the public in the Comprehensive Conservation Plan for the future Rocky Flats National Wildlife Refuge. The objective of the meetings was to collect information, ideas, questions and concerns from the public regarding the management and uses of the Refuge. The Comprehensive Conservation Plan will direct wildlife conservation, wildlife management, and wildlife-dependent recreation at the Refuge. Between January and May 2003, the U.S. Fish and Wildlife Service will use the public's comments to develop and analyze alternative plans for the Refuge.

A group of volunteers within the surrounding communities has been working to establish the Rocky Flats Cold War Museum to commemorate the legacy of the Site. Executive Director Steve Davis was hired in the spring of 2002. Volunteers have been working to collect artifacts from Rocky Flats for future exhibits. Oral testimonies are being collected from Site workers, retirees, activists and neighbors on the history of the Site. The Museum is working collaboratively with the Colorado Historical Society, the Jefferson County Historical Society, the U.S. Fish and Wildlife Service, and other stakeholders to pursue common interests in historical preservation and education.

Participation Opportunities in 2003

Rocky Flats welcomes public involvement in its activities to give stakeholders the chance to voice their opinions on cleanup and closure decisions made at the Site. The Department of Energy offers briefings, workshops and presentations on Site activities to keep the public informed and involved with the cleanup decisions that will lead to a safe closure.

Environmental Restoration (ER)/Deactivation and Decommissioning (D&D) Status Meetings: Attended by regulators and active Rocky Flats stakeholders, these meetings are held once a month. The format allows real-time discussions among stakeholders and Rocky Flats Field Office project teams on proposed remediation and demolition methods and decisions related to cleanup progress. This year the public will be asked to submit comments on the alternative demolition methods for Building 776. The community will be kept abreast of the progress on buildings such as Building 865, a former beryllium and depleted uranium machine shop. Scheduled for demolition in the spring of 2003, Building 865 will be the first major building to utilize Independent Validation and Verification (IVV). The IVV serves as the primary implementing document to conduct independent verification of predemolition survey actions by D&D contractors at the Site. Other issues and decision documents for public participation this year will include the ash pits, solar ponds cover, and the Original and Present Landfills.

Contacts: Joe Springer, DOE, 303-966-4076, and Norma Castaneda, DOE, 303-966-2446

Actinide Migration Evaluation Advisory Group (AME): The AME group was established five years ago and typically meets on a quarterly basis. Its mission is to investigate how radioactive elements move in the environment. Researchers involved in the evaluation process come from DOE laboratories, universities, and private engineering firms. A summary document entitled Actinide Migration Evaluation Pathways Analysis Summary Report is available by calling John Corsi at 303-988-6526.

Contact: Russell MCallister, DOE, 303-966-9692

Quarterly Stakeholder Meetings: On-going Quarterly Stakeholder Meetings with the Rocky Flats Manager give stakeholders, congressional staff, regulators and community members the opportunity to meet informally to discuss Rocky Flats' issues and concerns. The meeting is usually hosted by one of the local governments.

Contact: Anna Martinez, DOE, 303-966-5881

Rocky Flats National Wildlife Refuge Memorandum of Understanding: The Memorandum of Understanding will detail the division of responsibilities between the Department of Energy and the U.S. Fish and Wildlife Service when Rocky Flats becomes a National Wildlife Refuge after the Site Closure Project is complete. The Memorandum of Understanding will address the transfer of jurisdiction, and the impact of property rights, identify the land for administrative jurisdiction, and specify the allocation of federal costs incurred at the Refuge after the transfer. Progress on the Memorandum of Agreement negotiations was reported periodically at the Rocky Flats Coalition of Local Governments and the Rocky Flats Citizens Advisory Board meetings. Stakeholders can expect to see the draft Memorandum of Understanding in the Federal Register for review and comment after the first of the year.

Contact: Cliff Franklin, DOE, 303-966-5919

Comprehensive Conservation Plan and Environmental Impact Statement: The Comprehensive Conservation Plan is a long-term management plan for the Rocky Flats National Wildlife Refuge

that defines the goals and objectives of the Refuge for wildlife, habitat and public use. The U.S. Fish and Wildlife Service is responsible for developing the plan. The public three-year planning process will focus on informing the public, gathering public input and analyzing public comments. The initial planning stage began in September 2002 with four public scoping meetings held within the surrounding communities. The USFWS is planning several update reports and public involvement opportunities to keep the public informed on the planning process. The draft alternatives analysis for the Comprehensive Conservation Plan will be available in late spring 2003. The draft Comprehensive Conservation Plan/Environmental Impact Statement review is slated for early 2004.

Contact: Laurie Shannon, USFWS, 303-289-0980

Rocky Flats Coalition of Local Governments: The Coalition was formed to provide a forum for cooperation among the seven governmental jurisdictions adjacent to Rocky Flats and to ensure "One Clear Voice" between the local governments and the Site. Membership consists of local city officials from Jefferson County, Boulder County, City of Westminster, City and County of Broomfield, City of Arvada, City of Boulder and the Town of Superior. The 2003 Rocky Flats Coalition of Local Governments strategic plan focuses on integrated end-state conversations on final cleanup levels, surface water protection and subsurface cleanup strategy, development of the Comprehensive Conservation Plan for the Refuge, a robust long-term stewardship plan, and assuring Rocky Flats workers remain on-site as needed through closure. The Board convenes the first Monday of each month and the public is invited to attend.

Contact: David Abelson, Coalition, 303-412-1200

Rocky Flat Citizens Advisory Board: The Citizens Advisory Board is a nonpartisan, broadly representative independent advisory board with concerns related to Rocky Flats activities. Its main purpose under the auspices of the Federal Advisory Board Act is to study Rock Flats cleanup issues and develop consensus recommendations. Topics range from broad policy issues such as waste disposal and end-state to specific worker safety concerns at the Site. The 2003 Work Plan will focus on the D&D projects and environmental restoration activities proposed for closure in 2006. The Long-Term Stewardship program and planning for the Rocky Flats National Wildlife Refuge are of key concern. Two standing issue-oriented sub-committees, the Wildlife Refuge Technical Review Group and the Closure Projects Committee, will continue to do some of the Board's work. The board meets the first Thursday of each month and the public is invited to attend.

Contact: Ken Korkia, RFCAB, 303-420-7855

Stewardship Working Group: To help ensure the long-term protection of our communities and to address the relationship between stewardship and cleanup, the Coalition and the Rocky Flats Citizens Advisory Board have joined forces to convene the Stewardship Working Group consisting of regulatory agencies, local governments, and community organizations. The group's primary goal is to develop the appropriate level of long-term protection analysis in RFCA decision documents. This year the Stewardship Working Group will continue its efforts in providing input to DOE on the Long-Term Stewardship Strategy. The public is welcome to attend the monthly meetings held the third Thursday of each month.

Contact: Ken Korkia, RFCAB, 303-420-7855, and David Abelson, RFCLoG, 303-412-1200